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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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JONATHAN Y. KANG, ESQ.
LEE & HONG P.C.
801 S. Figueroa St., #1400
Los Angeles, CA 90017

EXAMINER

GESESSE, TILAHUN

ART UNIT	PAPER NUMBER
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2684

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/603,556	Applicant(s) YU, JAE-WOOK	
	Examiner Tilahun B. Gesesse	Art Unit 2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8/2/04 & 2/15/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1,5-6,10,13-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Kurchuk US patent No. 6,195,535.

Claim 1. Kurchuk teaches a transceiver of a terminal for use in a TDD-based mobile communication system (item # 24,26,28 of figure 3) (column 3, line 45-column 4, line 47 and figures 3 and 8) comprising:

Kurchuk teaches a receiver for processing a reception signal in a reception mode (receiver 28 receives signals and process such as amplify and down converter to IF and input to base-band controller , see figure 3).

Kurchuk teaches a transmitter for processing a transmission signal in a transmission mode (base band output signal processed in the transmitter 26 and transmit to antenna to be radiated, see figure 3).

Kurchuk teaches a switching mechanism operable in the transmission mode and the reception mode (the switch 24 of figure 3, switches received incoming signals to the receiver and transmit signals from transmitter 26) and

Kurchuk teaches a ground divider for dividing grounds for the receiver, the transmitter, and the switching mechanism (switch 24 includes power transistor (Q1 and Q2 turn on/off to divide signal between transmitter and receiver, see column 4 lines 7-47 and figure 3).

Claim 5, Kurchuk teaches the switching mechanism (24) an antenna a switch for selectively connecting the antenna to the receiver and the transmitter and a duplexer positioned between the antenna and the switch (see column 4, lines 1-21 and figures 3 and 8 where selectively transmit and receive based on strength of the signal).

Claim 6. Kurchuk teaches the ground divider comprises: a first ground separation element for isolating a receiver ground for the receiver and a common ground for the switching mechanism from each other and a second ground separation element for isolating a transmitter ground for the transmitter and the common ground (see column 4, lines 28-47 and figure 3, where the controller turns on and off the FET Q1 and Q2, accordingly to receive and transmit the switch signals to receiver and transmitter).

Claim 10. Kurchuk teaches a method of data communication in a TDD-based mobile communication system item # 24,26,28 of figure 3) (column 3, line 45-column 4, line 47 and figures 3 and 8), the method comprising:

Kurchuk teaches processing a reception signal in a reception mode (receiver 28 receives signals and process such as amplify and down-converter to IF and input to base band controller, see figure 3)

Kurchuk teaches processing a transmission signal in a transmission mode (base band output signal processed in the transmitter 26 and transmit to antenna to be radiated, see figure 3) where in a switching mechanism operable in the transmission mode and the reception mode; and dividing grounds for the receiver, the transmitter, and the switching mechanism switch 24 includes power transistor (Q1 and Q2 turn on/off to divide signal between transmitter and receiver, see column 4 lines 7-47 and figure 3).

Claim 13 Kurchuk teaches the step of processing a transmission signal in a transmission mode further comprises isolating the transmitter from signal interference created by the switching mechanism (switch 24 includes power transistor (Q1 and Q2 turn on/off to divide signal between transmitter and receiver, see column 4 lines 7-47 and figure 3).

Claim 14 Kurchuk teaches the switching mechanism comprises an antenna a switch for selectively connecting the antenna to the receiver and the transmitter; and a duplexer positioned between the antenna and the switch (see item #15 antenna and switch 24 figure 3 and column 4, lines 1-21).

Claim 15, Kurchuk teaches the dividing step comprises: isolating a receiver ground for a receiver performing the receiving step from a common ground for the switching mechanism, using a first ground separation element switch 24 includes power

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transistor (Q1 and Q2 turn on/off to divide signal between transmitter and receiver, see column 4 lines 7-47 and figure 3).

Claim 16 Kurchuk teaches the dividing step comprises: step from a common ground for the switching mechanism, using a second ground separation element (see figure 3 item 24).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-4,7,11-12,17,9,20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurchuk US patent No. 6,195,535 in view of Sugawara (UK 2277650).

Claims 2-3, Kurchuk does not explicitly teaches a reception filter for filtering the amplified reception signal and for providing the filtered reception signal to an intermediate frequency processor.

However, Jun Sugawara teaches a reception filter (29) for filtering the amplified reception signal and for providing the filtered reception signal to an intermediate frequency processor (30) (see figure 1, down-converted by the mixer and filter (30) and provided to detector).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time of the invention was made to modify Kurchuk system by using filter to remove

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unwanted or noise factor, as taught by Jun '650, in order to separate the signals transmit from transmitter and signals received by the receiver and the switch by that avoids from interfering signals and conserve power by turning off one of the transmitter or receiver.

Claim 4, Kurchuk teaches the transmitter further comprises an isolator for isolating the transmitter from signal interference created by the switching mechanism (column 4, lines 21-47).

Claims 7,17 Kurchuk does expressly teach the first and second ground separation elements is an inductor. However, 650 teaches inductor, see abstract and Item #5 of figure 2). It would have been obvious to an artisan of ordinary skill in the art at the time of the invention was made to modify Kurchuk switching system

Claims 9,20 Kurchuk teaches the switching mechanism (24) comprises an antenna (15) a duplexer connected to the antenna, the duplexer selecting transmission and reception frequency for sending the reception signal from the duplexer to the receiver and for sending the transmission signal from the transmitter to the antenna (see figure 3 and column 4, lines 1-47).

Kurchuk does not teach the antenna coupled to a circulator. However, '650 teaches an antenna coupled to a circulator by that divides the transmitter and receiver (see figure 1). Then, it would have been obvious to an artisan of ordinary skill in the art at the time of the invention was made to modify Kurchuk's system a circulator as distributing node, as taught by '650, in order to isolate the interfering signal or combat interference.

Claims 11-12, Kurchuk teaches the step of processing a reception signal in the reception mode comprises amplifying the reception signal provided by the switching mechanism, using a low-noise amplifier (see item # 60 of figure 3 a part of receiver 28) and providing the reception signal to an intermediate frequency (as illustrated in figure 3, receiver 28, receives RF signal and mixed with oscillator, which down convert in to Intermediate frequency , which is also provided as base band signal).

Kurchuk does not explicitly teach filtering the amplified reception signal using a reception filter. However, '650, teaches band pass filter in the receiver circuit section (21) of figure 1). Then, it would have been obvious to an ordinary skill in the art at the time of the invention was made to filter the amplified reception signal for eliminating the unwanted bands from signal and passes the limited band using filter.

6. Claim 8, 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurchuk in view of '650 as applied to claim 1-7, 9-17 and 19-20 above, and further in view of Howell (US 2002/00115435).

Claims 8 and 18-19, Kurchuk and '650 do not teach ground separation elements is a ferrite bead. However, Howell teaches ground separation elements is a ferrite bead (see figure 5). It would have been obvious to an artisan of ordinary skill in the art at the time of the invention was made to use ferrite bead as an isolating device.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tilahun B Gesesse whose telephone number is 571-272-7879. The examiner can normally be reached on flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on 571-272-7882.

The Central FAX Number will change to 571-273-8300. This new Central FAX Number is the result of relocating the Central FAX server to the Office's Alexandria, Virginia campus.

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12/23/05
Tilahun B Gesesse
TILAHUN GESESSE
PRIMARY EXAMINER